

42390P16990

Objection to the Specification

The Office Action states that the disclosure is objected to for several informalities. In accordance with 37 CFR 1.121, an instruction is provided that unambiguously identifies the paragraph. Included is the full text of the paragraph with markings to show all the changes relative to the previous version of the paragraph.

Please amend the specification as shown below.

Page 6

Please change the paragraph on page 6, starting at line 28, as follows:

Fig. 4 illustrates a 16-state convolution encoder state transition graph for a rate one-half convolution code. Fig. [1] 5 illustrates an example of a transition calculation for one embodiment of the present invention. Note that the new state S_0 may have a previous state, being either S_0 or S_8 . In the Viterbi algorithm of the present invention, a branch metric is calculated for each transition between the states. The branch metric is calculated for each of the possible transitions between states in the trellis. In this example, the branch between the old state S_0 and the new state S_0 has a branch metric of 1. The branch between the old state S_8 and the new state S_0 has a branch metric of 3. After the calculation of the branch metric, the branch metric is added to the prior path metric of the old state to produce two candidate path metrics. One of the candidate path metrics corresponds to the transition between the old state S_0 and the new state S_0 and has a path metric of 6; the other candidate path metric corresponds to the transition between the old state S_8 and the new state S_0 and has a candidate path metric of 16. Since the path metric of 6 is less than candidate path metric 16, the new path metric is selected as 6, and the selected transition is between the old state S_0 and the new state S_0 .

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Please change the paragraph on page 7, starting at line 15, as follows:

Looking again at Fig. 5, the old state S_0 has a prior optimal path of "...1011," whereas the old state S_8 has a prior optimal path of "...1100." The optimal path [associate] associated with the old state is shifted one bit to allow the new data "0", indicative of the transition between the old state S_0 and $[s_0]$ the new state S_0 to be added to produce a new optimal path "...10110."

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Please change the paragraph on page 10, starting at line 20, as follows:

The optimal path calculation 114 preferably operates in parallel with the calculation of the new path metric. In step 116, the construction of the path metric produces an indication of the traceback pointer. This traceback pointer allows for the determination of the new data in step 116, and the updating of the optimal path in step 118. The steps 120 effectively duplicate the steps 105. For this reason, indications from the calculation of the new path metrics can be used to update the next state and the next symbol. In one embodiment, in order to speed up the operation of the steps 116 and 118, the previous optimal paths are preloaded in a step 122. The previous optimal path values can be updated in the updating step 118. Note that the calculation of the optimal path can be computationally intense, requiring calculations for every trellis state in each symbol period. Thus, if there are 256 trellis states and 192 symbols in the block, the number of updates of the optimal path in the calculation steps 114 is 256×192 . Due to the parallelism, calculation [114] steps 114 are done at the same time as new path metric block calculation steps 98. Thus, the readout of the optimal path in step 124 can be made much quicker than the traceback technique done in the prior art, reducing the total calculation time.

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Page 13, lines 7-11

Please remove the three paragraphs on page 13, starting with line 7 and continuing through line 11 that reference Figs. 13-16. The paragraphs to be removed are as follows:

[Fig. 13 illustrates a general add/compare/select circuit used in one embodiment of the present invention.

Fig. 14 illustrates another path metric state update circuit.

Fig. 15 illustrates an implementation of a single optimal path value update circuit.]

Further, please remove the corresponding references under BRIEF DESCRIPTION OF THE DRAWINGS on page 5, starting with line 1 and continuing to line 8, that describe Fig. 13, Fig. 14, Fig. 15 and Figs 16A and 16B. Thus, the paragraphs to be removed are as follows:

[Fig. 13 is a diagram of an add/compare/subtract circuit used with one embodiment of the present invention.

Fig. 14 is a diagram of a path metric update circuit of one embodiment of the present invention.

Fig. 15 is a diagram of an optimal path value construction unit of one embodiment of the present invention.

Figs. 16A and 16B are diagrams illustrating a "ping-pong" memory embodiment of Fig. 6C.]

Along with removing the reference to Figs. 13-16 from the specification, the corresponding drawings for these figures sent in the amendment dated August 4, 2004, show the marking of these figures as cancelled and labeled as 'Annotated Sheet' per 37 CFR 1.121(d)(1).

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On page 14, line 1, please replace "Claims:" with "The Invention Claimed Is:".